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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

March 25, 1996

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Ms. Regina M. Keeney
Chief, Common Carrier Bureau
Federal Communications Commission
1919 M Street, NW
Room 500
Washington, DC 20554

Re: FCC Implementation of the
Telecommunications Act of 1996

Dear Ms. Keeney:

Attached is a memorandum which presents Ameritech's thoughts on how the Commission might best approach pricing issues raised by Section 252 of the Telecommunications Act of 1996. This memorandum is intended to supplement Ameritech's March 12, 1996 memorandum, which addresses only Section 251.

As you know, Ameritech has also participated in jointly drafting a proposed NPRM with the other regional companies and GTE. As is the case with Ameritech's Section 251 memorandum, to the extent that there are differences between the attached memorandum and the industry document, the attached memorandum more fully and accurately reflects Ameritech's own views.

If you have any questions, please give me a call.

Sincerely,

Fred Konrad/tra

Attachment
cc: L. Belvin
J. Casserly
D. Gonzalez
J. Nakahata
T. Silbergeld

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AMERITECH'S PROPOSED INTERPRETATION OF SECTION 252 PRICING STANDARDS

EXECUTIVE SUMMARY

Section 252(d) sets forth the pricing standards to be used in determining just and reasonable rates for interconnection, network elements, reciprocal compensation, and resold services. These standards are consistent with standard economic principles and encourage economic entry, protect local exchange consumers, and avoid gaming by all parties to negotiations.

Costs. The three pricing standards set forth in Section 252(d) each employ the concept of recovery of costs. The total costs of a telecommunications firm, like any multiproduct firm, can be thought of as falling into four categories: (1) direct incremental costs or Total Service Long Run Incremental Costs ("TSLRICs"); (2) joint (or shared) costs; (3) common costs (or overhead); and (4) residual costs. These four categories must be considered together to determine the cost of a service. A component cost within each of these four cost categories is the cost of acquiring capital assets, including the cost of money. The cost of money is a cost, not profit, because covering the cost of money is just as necessary for a firm's long term survival as covering any incremental, joint, or common costs.

Interconnection and Network Element Charges. Section 252(d)(1) provides that charges for interconnection under Section 251(c)(2) and network elements under Section 251(c)(3) are to be determined based on cost (determined without reference to rate-based proceedings) and may include reasonable profit. The admonition against relying on rate-based proceedings is direction from Congress to look at forward-looking costs, such as TSLRIC, as well as joint and common costs, but not historical costs. As the Commission has recognized in the expanded interconnection proceeding, costs include TSLRIC, joint, and common costs associated with providing interconnection and network elements because an incumbent LEC cannot earn a reasonable profit until all of its costs are recovered. Residual costs, which have been referred to by interexchange carriers as "inefficiencies," include real costs incurred by incumbent LECs. Since State social policies have constrained the ability of LECs to recover these costs, States should be allowed to determine whether recovery of such costs is appropriate under Section 252. In addition to recovering costs, a LEC is entitled under 252(d)(1) to earn a reasonable profit which means, in economic terms, a positive economic profit. What is reasonable depends on the facts in the situation presented.

Wholesale Prices. Section 252(d)(3) specifies that wholesale rates for resold services under Section 251(c)(4) are to be based on retail rates excluding the portion "attributable to any marketing, billing, collection, and other costs that will be avoided by the [incumbent LEC]." To determine the appropriate wholesale price, one must compare the cost of operating as a retail enterprise with the costs of operating as a wholesale enterprise. The difference, known as avoided cost, should be deducted from the retail price to determine the wholesale price. In other words, costs that are incurred as a result of making services available on a wholesale basis are not "avoided" and thus should not be excluded in the calculation of just and reasonable wholesale rates.

Reciprocal Compensation. Section 252(d)(2) provides that States shall not consider the terms and conditions for reciprocal compensation to be just and reasonable unless such terms and conditions allow for the recovery by each carrier of the costs associated with transport and termination of calls that originate on the other carrier's network. By not including the term "reasonable profit," Section 252(d)(2) contemplates that carriers would be allowed to earn only zero economic profit.

Section 252(d)(2)(B) further contemplates that the parties *can voluntarily* waive the recovery of costs, through arrangements such as bill-and-keep, but States may not mandate such arrangements. The reference to "additional costs" in Section 252(d)(2)(A)(ii) guarantees that carriers, at a minimum, can recover TSLRIC. Allowing a State to force parties into bill-and-keep arrangements would violate that provision and could result in one or more carriers being required to provide a service without compensation.

Availability to Other Carriers. Section 252(i) requires a LEC to make available any interconnection, service, or network element, provided under an agreement approved by a State commission to which it is a party, to any other requesting carrier upon the same terms and conditions as those provided in the agreement. This statutory requirement should be interpreted as requiring LECs to make available on the same terms and conditions any interconnection, service, or network element provided under a State-approved agreement or a statement, subject to all terms and conditions contained therein.

AMERITECH'S PROPOSED INTERPRETATION OF SECTION 252 PRICING STANDARDS

I. Introduction

Section 252(d) sets forth the pricing standards to be used in determining just and reasonable rates for interconnection, network elements, reciprocal compensation, and resold services. These standards govern in the event States (or the FCC in the event a State fails to act) must step in and arbitrate issues that are not resolved between the parties during the course of negotiations.[1] These standards also apply to arbitrated agreements submitted for State approval pursuant to Section 252(e). Agreements (or portions thereof) adopted through arbitration may be rejected if they do not comply with Section 251 (including the Commission's regulations promulgated thereunder) or with the statutory pricing standards set forth in Section 252(d).[2]

Specifically, Section 252(d) sets forth three pricing standards: charges for interconnection and network elements, charges for reciprocal compensation, and

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1 See 47 U.S.C. § 252(c). The pricing standards set forth in Section 252(d) also apply in the following contexts: State approval of Bell Operating Company statements of general terms and conditions (Section 252(f)); Commission preemption if States fail to act (Section 252(e)(5)); and compliance with the competitive checklist (Section 271(c)).

2 Agreements adopted through voluntary negotiations, in contrast, may be rejected by the State only if the agreement discriminates against a carrier that is not party to the agreement or if the agreement is not consistent with the public interest. See 47 U.S.C. § 252(e)(2)(B).

wholesale prices for resold services offered by incumbent local exchange carriers ("LECs"). Under Section 252(d)(1), charges for interconnection under Section 251(c)(2) and network elements under Section 251(c)(3) are to be determined based on the cost of providing the interconnection or network element and may include reasonable profit. Under Section 252(d)(2), charges for transport and termination of traffic shall not be deemed just and reasonable unless such charges allow for the mutual reciprocal recovery of costs by each carrier and determine such costs based on a reasonable approximation of the additional costs of terminating calls. Finally, under Section 252(d)(3), wholesale prices for resold services are to be based on the retail rate charged to non-carrier subscribers less any costs avoided by the incumbent LEC by selling at wholesale rather than retail.

The standards detailed in Section 252(d) provide the necessary flexibility to determine what is "just and reasonable" depending on the circumstances of the situation.[3] Moreover, the standards articulated in Section 252 are consistent with standard economic princi-

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[3] Congress in the 1996 Act did not contemplate that the Commission would adopt formal regulations under Section 252. If Congress had intended the Commission to promulgate pricing regulations as part of the statutorily required Section 251 rulemaking proceeding, it would not have instructed the States to consider compliance with both the regulations promulgated under Section 251 and the pricing standards of Section 252(d) when approving interconnection agreements. See 47 U.S.C. §§ 252(e)(2)(B) and 252(f)(1) (expressly distinguishing between *regulations* prescribed by the Commission pursuant to Section 251 and pricing *standards* set forth in Section 252(d)).

ples and can be applied in a manner that harmonizes the three pricing rules so as to encourage economic entry, to protect local exchange consumers, and to avoid gaming by all parties to negotiations.

II. Costs for the Provision of Telecommunications Services

The total costs of a telecommunications firm, like any multiproduct firm, are divided into four categories: (1) direct incremental costs or Total Service Long Run Incremental Costs ("TSLRICs")[4]; (2) joint (or shared) costs; (3) common costs (or overhead); and (4) residual costs. These four components must be considered together to determine the cost of providing a telecommunications service.

A. Incremental Costs.

As recognized by the Commission, TSLRIC is the incremental costs of providing each individual service of the firm.[5] The TSLRIC of providing any service includes

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[4] Such direct, incremental costs are referred to by a variety of names, including Long Run Service Incremental Cost, Long Run Incremental Cost, and Total Service Long Run Incremental Cost. All have the same conceptual meaning. For purposes of simplicity, the term TSLRIC will be used in the balance of this paper.

[5] See Expanded Interconnection with Local Telephone Company Facilities, *Report and Order and Notice of Proposed Rulemaking*, 7 FCC Rcd 7369, 7422-27 (1992) [hereinafter Expanded Interconnection Order].

all the costs of capital,[6] labor, materials, and other costs that are caused by the provision of such service, given all the other services the firm is also providing. Stated another way, TSLRIC is the specific costs related to a particular service that the firm using the best available technology would save if it stopped providing that service entirely, but continued to provide all other services at their current levels.[7] TSLRIC does not include joint, common, or residual costs.

For example, the TSLRIC for the custom calling feature known as Call Waiting would include switch processing, advertising, feature input, billing, and service order training. The cost associated with the right-to-use ("RTU") fee or software program would not be included in the calculation of TSLRIC, however, because the switch software program for Call Waiting functionality is purchased in a package with other feature software. The RTU fee would not be included in the TSLRIC of any individual

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6 A component of each of the four cost categories is the cost of acquiring capital assets, which includes not only the recovery of the invested capital, but also the cost of money. In general terms, the cost of money is the return that a firm must pay, on average, to attract funds away from other investment opportunities. Under standard economic principles, the cost of money is considered a cost, rather than profit, because covering the cost of money is just as necessary for long term survival of incumbent LECs as covering any incremental, joint, or common costs. See Browning, Edgar K., and Browning, Jacquelene M., Microeconomic Theory and Applications (4th ed. 1992).

7 TSLRIC is calculated based on forward-looking technology, and thus does not include historical costs. See infra discussion in Part II.D.

service provided by an incumbent LEC because the RTU fee would not be eliminated by ceasing to provide any single service.

B. Joint Costs

Joint (or shared)[8] costs are those costs incurred in the provision of a group or family of services, but which are incremental to no one service individually. Joint costs thus could be avoided only by eliminating the entire group or family of services. As with TSLRIC, joint costs include the cost of the capital, labor, materials, and other costs associated with the provision of a group or family of services. The capital assets, labor, materials, and other inputs that are shared within a family of services, and thus attributed to joint costs, are different from those that are assigned to the TSLRIC of a specific service (or any other cost category).

For example, the RTU fee is a joint cost of providing the family of services including Call Waiting and other custom calling functionalities, such as Call Forwarding, that are governed by the same software package. Another example would be the manager who oversees the provision and marketing of such custom calling services.

C. Common Costs

Common costs, which are often referred to as overhead, are those costs (i.e., costs of capital, labor,

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[8] Joint costs are sometimes called "shared" costs. See, e.g., Proceedings To Refine the Definition of, and Develop a Methodology To Determine, Long Run Incremental Cost for Application Under 1991 PA 179, *Opinion and Order*, Docket No. U-10620 (Mich. Pub. Serv. Comm'n 1994) at 14.

materials and other costs) necessary for the operation of the firm as a whole, but are neither incremental to any individual service nor are they the joint costs of any specific group or family of services. The difference between joint and common costs is that joint costs would be avoided if a single family of services were eliminated, but common costs would be avoided only if the entire firm shut down. Examples of common costs include the CEO's desk and building rent for the corporate headquarters.

D. Residual Costs

Finally, residual costs include, among other things, the incremental costs of a service that are not included in TSLRIC. TSLRIC is not an estimate of the actual incremental cost of providing a service, but rather the cost that would be incurred if the service were provided under the most efficient available technology. In reality, however, a network is not rebuilt at each point in time to take advantage of improved technology. Instead, it is built bit by bit over time and encompasses multiple generations of technology. Although, each investment decision may have been efficient and foresighted when made, the resulting network will not be identical to the one that could be built today if it were reconstructed under the best forward looking technology available. Hence, the cost of a network or other facilities devoted to a particular service will often exceed the TSLRIC. The difference between the TSLRIC and the actual incremental cost is a residual cost.

Residual costs also include the cost of assets that remain on the books because they were depreciated at too slow a rate. That is, when assets are depreciated on the books at a slower rate than their economic depreciation, there will be some time during which they will remain on the books as a cost when they are no longer generating value.

To recap, for all multiproduct firms, the sum of all TSLRICs falls short of the total costs of a firm because TSLRIC excludes all of the costs in the other three categories. As the Commission has succinctly stated in the directly analogous context of expanded interconnection:

> [I]t would not be reasonable to require LECs to base [expanded interconnection] charges on the direct costs of those services, with no loadings for overhead costs. Direct-cost-based pricing . . . would make these charges one of the few, if any, LEC offerings not recovering overheads [and] would either require all other LEC services to recover a proportionally greater share of such costs or require LECs to forgo revenues. Moreover, the low charges for interconnection with LEC facilities resulting from [such] approach would give interconnectors false economic signals that could stimulate uneconomic entry.[9]

Indeed, in that proceeding, the Commission specifically rejected the argument that costs for expanded interconnection should reflect only TSLRIC.[10]

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9 Expanded Interconnection Order, 7 FCC Rcd at 7429 n.291; see also Interconnection and Commercial Mobile Radio Service Providers *Notice of Proposed Rulemaking*, CC Dkt. No. 95-185 ¶ 48 (released Jan. 11, 1996) [hereinafter LEC-CMRS Interconnection Notice] (recognizing that setting the price based only on TSLRIC will not recover total costs).

10 Expanded Interconnection Order, 7 FCC Rcd at 7427-7429.

III. Reasonable Profit

Profit generally is the excess of the firm's total revenues over the firm's total costs, taking into account all costs, including the cost of capital.[11] A firm earns zero economic profit if it merely covers its TSLRIC, common, joint, and residual costs in the prices for its services. In such a case, the firm's investors are restricted to a return no greater than the cost of capital included in those costs. Under standard economic theory, the least efficient carriers in the industry would earn zero economic profits in a long run competitive equilibrium in a static market.

Positive economic profits are earned by efficient and innovative firms in a competitive market. In addition, positive economic profits may be earned by all carriers in the industry if costs unexpectedly fall or demand unexpectedly rises. Without the potential for positive economic profits, investors have no incentive to risk their capital in research and development activities, and the public interest would suffer because consumers would be deprived of the benefits of innovation.[12]

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11 See generally, testimony of Dr. Debra J. Aron before the Illinois Commerce Commission in ICC Dkt. No. 95-0296 attached hereto.

12 Indeed, the Commission has previously recognized that the public interest would be served by providing LECs with an adequate incentive to innovate. See Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for Open Network Architecture: Policy and Rules Concerning Rates for Dominant Carriers, *Report and Order & Order on Further Reconsideration* (continued...)

Therefore, reasonable profit necessarily implies positive economic profits.

IV. Charges for Interconnection and Network Elements

Section 252(d)(1) provides that charges for interconnection under Section 251(c)(2) and network elements under Section 251(c)(3) are to be determined based on costs (determined without reference to rate-of-return) and may include reasonable profit. The term cost should reflect economic cost based upon forward-looking incremental cost.[13] Indeed, by including the parenthetical that costs should be determined without reference to "a rate-of-return or other rate based proceeding,"[14] Congress meant forward-looking -- not historical -- costs. Moreover, the allowance for reasonable profit underscores that Congress intended incumbent LECs to recoup all costs, including joint and common costs and the cost of money, associated with providing interconnection and network elements because an incumbent LEC cannot earn a reasonable profit until all of its costs are recovered.

TSLRIC therefore simply cannot be equated with the pricing standard for interconnection and unbundled network elements. As discussed above in Section II, TSLRIC does not begin to cover all the costs of providing

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[12](...continued) & *Supplemental Notice of Proposed Rulemaking*, 6 FCC Rcd 6524, 6531 (1991).

[13] Such costs would include any new cost associated with providing a network element.

[14] 47 U.S.C. § 252(d)(1)(A)(i).

telecommunications services. Rates charged to competitors that do not reflect all of the costs would result in uneconomic entry and would ultimately lead to the incumbent LEC's remaining customers subsidizing new entrants.

To the extent residual costs do not reflect forward-looking costs, clearly such costs may not be recovered under Section 252(d)(1). As described in Part II above, however, some residual costs (e.g., under-depreciated assets) are the result of State social policies. And thus, States should determine whether recovery of such costs is just and reasonable based on evidence presented to it and specific circumstances in that State.

Finally, although Congress clearly did not intend to supplant the current access charge regime with Sections 251 and 252, it will be increasingly untenable to sustain large gaps between access charges and Section 252 charges. Such gaps would surely lead to arbitrage by interexchange carriers and thus raise difficult regulatory issues as to which set of prices apply in particular situations. Therefore, just as the Commission has always permitted carriers to recover direct, as well as joint and common costs, in their access charges,[15] Section 252 pricing standards for interconnection and network elements should likewise allow for the recovery of these costs.

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15 See generally, 47 C.F.R. Part 69; see also LEC-CMRS Interconnection Order ¶ 50 (acknowledging that LEC service offerings generally are priced to recover some portion of shared costs and overheads).

V. Wholesale Prices for Resold Services

Section 252(d)(3) specifies that wholesale prices for resold services under Section 251(c)(4) are to be based on retail rates excluding the portion "attributable to any marketing, billing, collection, and other costs that will be avoided by the [incumbent LEC]." From an economic perspective, a wholesale price is properly calculated by comparing the costs of the incumbent LEC operating as a retail enterprise with the costs of such incumbent LEC operating as a wholesale enterprise. The difference is the avoided cost that should be deducted from the retail price to determine the wholesale price.

In other words, costs that are incurred as a result of making services available on a wholesale basis are not avoided and thus should not be excluded in the calculation of just and reasonable wholesale prices. For example, although an incumbent LEC would not incur the same marketing, billing, collection and other costs associated with retailing services to end users, it will nevertheless incur some marketing, billing, collection, and other costs when offering such services at wholesale to carriers.

Indeed, the 1996 Act does not distinguish between marketing, billing, collection, and other costs incurred as the result of retail activity and those same types of costs incurred as the result of wholesale activity. The 1996 Act simply refers to these types of costs generically. This generic reference, however, should not be interpreted as congressional intent to classify all such costs as avoided regardless of whether incurred in the course of wholesale offerings. Indeed, to exclude recovery of such costs incurred in the course of wholesale offerings would force the wholesale service supplier (i.e., the incumbent LEC) to offer services at rates that are not compensatory and thus would encourage inefficient entry.

VI. Reciprocal Compensation

Section 252(d)(2) provides that States shall not consider the terms and conditions for reciprocal compensation to be just and reasonable unless such terms and conditions allow for the recovery by each carrier of the costs associated with terminating traffic that originates on the other carrier's network. Unlike the statutory standard for interconnection and network element charges, the standard does not specifically allow the recovery of a reasonable profit.[16] The most logical interpretation of the absence of the phrase "reasonable profit" appears to be that carriers can only earn zero economic profit from the transport and termination of traffic.[17] In other words, such charges should allow the carrier to recover all costs, including joint and common costs, if the State finds such charges just and reasonable.

Section 252(d)(2)(B)(i) further provides that arrangements affording the mutual and reciprocal recovery of costs does not "preclude . . . arrangements that waive

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[16] 47 U.S.C. § 252(d)(2)(A).

[17] As discussed supra note 6, a firm earning zero economic profit still recovers the cost of money.

mutual recovery (such as bill-and-keep arrangements)."[18] Parties thus are allowed to *voluntarily* waive mutual recovery of costs through arrangements, such as bill-and-keep. Insofar as waiver is a *voluntary* relinquishment of rights, it is clear that Section 252(d)(2)(B) does not permit a State to mandate an arrangement, such as bill-and-keep, in contravention of the right to recover costs. The reference to "additional costs" in Section 252(d)(2)(A)(ii) guarantees that carriers, at a minimum, recover TSLRIC. For a State to force parties into bill-and-keep arrangement could result in one or more carriers being required to provide a service without compensation, which is the equivalent of requiring one carrier to subsidize the services provided by another carrier -- a result clearly not permitted by the statute.

VII. Availability to Other Carriers

Section 252(i) requires a LEC to make available, any interconnection, service, or network element provided under an agreement approved by a State commission to which it is a party, to any other requesting carrier upon the same terms and conditions as those provided in the agreement.[19] This statutory requirement

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[18] 47 U.S.C. § 252(d)(2)(B)(i).

[19] 47 U.S.C. § 252(i). To the extent a rural telephone company is exempt from interconnection negotiations pursuant to Section 251(f)(1) or to the extent a rural carrier's interconnection duties are suspended or modified pursuant to Section 251(f)(2), any interconnection agreements with such carriers that pre-date the enactment of the 1996 Act cannot be agreements reached through voluntary negotiations (continued...)

should not be interpreted as entitling requesting carriers to "cherry-pick" from among provisions contained in an agreement reached through negotiation. Agreements reached through voluntary negotiation under Section 251(a) are necessarily developed through the give-and-take process. Each term may be agreed to as specific consideration for some other term. Therefore, it would be inequitable to allow carriers to pick and choose provisions from among such State-approved agreements. Instead, consistent with the practice in all other contexts (e.g., AT&T contract tariffs), LECs should only be obligated to make available such interconnection, service, or network element provided under a State-approved agreement or a statement of generally available terms, subject to all applicable terms and conditions contained therein.

VIII. Conclusion

The foregoing analysis of the pricing and cost issues raised by Section 252(d) are summarized in the following principles:

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[19](...continued) pursuant to Section 252(a)(1) and, therefore, need not be submitted to the State commission for approval pursuant to Section 252(e). In other words, preexisting interconnection agreements with such rural carriers need to be submitted for approval by the State commission only if the rural carrier voluntarily responds (or else is compelled by a State to respond) to an interconnection negotiation request and ultimately enters into an agreement which incorporates by reference, or else leaves untouched, the preexisting agreement (or portions thereof).

(1) Charges for Interconnection and Network Elements. Charges for interconnection and network elements must be based on cost and may include a reasonable profit. For purposes of the Section 252(d)(1) pricing standards, the term "cost" includes the direct forward-looking incremental costs of providing the service or network element, as well as a reasonable allocation of the incumbent local exchange carrier's joint and common costs, including the cost of money. States should be permitted to allow incumbent local exchange carriers to recoup a reasonable allocation of residual costs, which do not reflect historical cost. The term "reasonable profit" permits incumbent local exchange carriers to earn positive economic profits.

(2) Wholesale Prices. Wholesale prices are calculated based on retail rates charged to non-carrier subscribers, less the marketing, billing, collection, and other costs avoided by the incumbent local exchange carrier by not performing retailing functions. The marketing, billing, collection, and other costs incurred by the incumbent local exchange carrier in offering services for resale are not costs avoided by such carrier.

(3) Reciprocal Compensation. Just and reasonable charges for the transport and termination of traffic, at minimum, must allow recovery of TSLRIC. Such charges may include recovery of all costs, including joint and common costs, associated with the transport and termination of traffic if the State finds such charges to be just and reasonable. Reciprocal arrangements that fail to afford mutual and reciprocal recovery of costs by both carriers may not be mandated under the Act, but parties may waive mutual recovery of costs through arrangements, such as bill-and-keep.

(4) Availability to Other Carriers. A local exchange carrier should make available any interconnection, service, or network element provided under an agreement or statement approved by a State commission to any other requesting telecommunications carrier upon the same terms and conditions as provided in the State-approved agreement or statement. The right of a telecommunications carrier to take such interconnection, service, or network element from an existing State-approved interconnection agreement should be conditioned upon such carrier taking the requested interconnection, service, or network subject to all the applicable terms and conditions contained in the State-approved interconnection agreement.

TESTIMONY OF DEBRA J. ARON

Qualifications and Purpose of Testimony

Q. Please state your name and business address.

A. My name is Debra J. Aron. I am Managing Economist and Director of the Evanston offices of the Law and Economics Consulting Group. Our offices are located at One Rotary Center, 1560 Sherman Avenue, Suite 1260, Evanston, IL 60201.

Q. What qualifications and credentials do you have pertaining to your testimony?

A. I hold a Ph.D. in economics from the University of Chicago. I was an Assistant Professor of Managerial Economics and Decision Sciences from 1985 to 1992 at the Kellogg Graduate School of Management, Northwestern University, and a Visiting Assistant Professor of Managerial Economics and Decision Sciences at the Kellogg School from 1993-1995. I was named a National Fellow of the Hoover Institution, a think tank at Stanford University, for the academic year 1992-1993, where I studied innovation and product proliferation in multiproduct firms. Concurrent with my position at Northwestern University, I also held the position of Faculty Research Fellow with the National Bureau of Economic Research from 1987-1990. At the Kellogg School, I have taught M.B.A. and Ph.D. courses in managerial economics, information economics, and the economics and strategy of pricing. My research focuses on multiproduct firms, innovation, and incentives, and I have published articles on these subjects in several leading academic journals. I have consulted to the telecommunications industry on strategic and efficient pricing in several midwestern markets. In 1979 and 1980 I worked as a Staff Economist at the Civil Aeronautics Board studying price deregulation of the airline industry. In July, 1995, I assumed my current position at the Law and Economics Consulting Group.

Q. Have you testified previously in State regulatory matters pertaining to telecommunications?

A. I submitted written testimony in two matters in Michigan (cases U-10860 and U-10775) regarding the proper interpretation of Long Run Incremental Cost and its role in pricing.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide an economic understanding of terms in the federal Telecommunications Act of 1996 ("the Act") that relate to pricing of unbundled network elements, based on the standard principles of economics.

Q. What are the main points of your testimony?

A. In my opinion the Telecommunications Act of 1996 should be interpreted in a way that is consistent with standard economic principles. Relying on accepted economic doctrine will provide a consistent basis for interpretation of the Act, and will most effectively achieve the Act's goal of stimulating a vigorous, efficient, and consumer-responsive competitive marketplace. Economic interpretation of the Act includes the following principles:

- Prices that are "based on costs" means that Long Run Service Incremental Cost (LRSIC) should be a price floor; prices for services must be set such that they cover all incremental costs of providing that service, including the cost of money, and, in addition, include contribution toward joint (or shared), common, and other costs of operation, each of which may also include a cost of money.
- The cost of capital, including the cost of money, is properly treated as a cost, not a profit.
- Contribution over LRSIC is necessary for a firm to cover all its costs.
- No firm can earn a "reasonable profit," under any sensible definition, without at least first covering all of its LRSICs and all of its joint, common, and other costs.

<u>What It Means for Prices to be Based on Cost Under the Telecommunications Act</u>

Q. What is the language in the Telecommunications Act that governs pricing of interconnection and unbundled network components?

A. Section 252(d) of the Telecommunications Act states the following:

> (d) **Pricing Standards:**
> (1) **Interconnection and network element charges:**
> **Determinations by a State commission of the just and reasonable rate for the interconnection of facilities and equipment for purposes of subsection (c)(2) of section 251, and the just and reasonable rate for network elements for purposes of subsection (c)(3) of such section--**
> **(A) shall be--**
> **(i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection or network element (whichever is applicable), and**
> **(ii) nondiscriminatory, and**
> (B) may include a reasonable profit.

In my testimony I will focus on the phrases "based on cost," and "may include a reasonable profit."

Q. Dr. Aron, the Act requires that prices be based on cost. How do you interpret this directive?

A. From my perspective, there are two issues to face. One is, on which cost should prices be based? The second is, what does "based on" mean?

Q. Does "prices based on cost" mean that the price of an unbundled network element should equal the average incremental cost of providing the unbundled network element?

A. No. In my opinion, "based on" should not be interpreted to mean "equal." But, moreover, even if prices were to equal *some measure* of costs, those costs should not be the average incremental cost. It would be entirely inappropriate for prices to equal average incremental cost, because total revenues would recover only the incremental costs; no common, joint, or other costs would be covered. Revenues would fall short of the total costs of the firm and the organization would not be viable, because there would be no contribution over incremental costs toward recovery of the labor, materials, or other inputs included in the non-incremental costs. The Act's provision that firms may be permitted to earn a reasonable profit suggests that Congress did not intend to pass a law that deliberately set prices that were not compensatory.

Q. How are prices set in an unregulated environment when a multiproduct firm has joint, common, and other costs?

A. Typically, the prices are set so that the revenue from a single product covers not only the incremental cost of providing that product, but also contributes revenues toward the joint, common, and other costs. The difference between the average incremental cost of a service and its price is therefore known as "contribution."

The term refers to contribution toward the recovery of non-incremental costs of providing the product, not contribution to profit. The amount of contribution issuing from each product typically depends on demand and competitive conditions. The price of a particular product or service would equal its incremental cost only in extreme situations, such as if perfect substitutes existed for the product, or for short periods of time as a promotional effort to build demand. Therefore, reasonable prices set by regulators should also include contribution.

Q. What, then, is a reasonable interpretation of the directive in the Act that prices be based on cost?

A. In my opinion, a reasonable interpretation of this directive is that the average incremental cost of a service or unbundled network element should serve as a price floor. Prices should typically exceed average incremental cost, so that all products contribute something toward joint, common, and other costs, subject to appropriate imputation requirements for any essential network elements. In this way, prices are "based on" the incremental cost in the sense that average incremental cost is a price floor, as it should be to avoid cross subsidization. In addition, prices are reasonably and appropriately related to the total cost of providing a service, by including a contribution to the costs over and above incremental costs.